ZESZYTY NAUKOWE POLITECHNIKI ŚLĄSKIEJ 2006
Seria: ARCHITEKTURA z. 44 Nr kol. 1744

Cuong NGUYEN PHU
School of The Built Environment, The University of Nottingham, UK
Wydział Architektury, Politechnika Krakowska, Polska

DO SUSTAINABLE URBAN FORMS EXIST?

Summary. This paper introduced an overview of the notion of sustainable development and the critical question and theory strands in the debate on sustainable urban form. Besides of that, the author also presented the emerging issues and what commonly agreed by scholars about sustainable urban forms, which could suggest an original approach to achieve sustainable development in the urban context.

CZY ISTNIEJĄ ZRÓWNOWAŻONE FORMY URBANISTYCZNE?

Streszczenie. „Czy istnieją formy urbanistyczne, które są bardziej lub mniej sprzyjające zrównoważonemu rozwojowi?" Żeby znaleźć odpowiedź na to pytanie, należy najpierw właściwie zrozumieć: „Co znaczy pojęcie zrównoważonego rozwoju?" Mimo faktu, że od dwóch dekad zrównoważony rozwój został popularnie uznany za jeden z najważniejszych celów dla rozwoju każdego narodu oraz całego świata, nadal nie ma zupełnej zgody, czym jest zrównoważony rozwój oraz - co najważniejsze - jak można go osiągnąć? W każdej dziedzinie nauki i rozwoju te dyskusje mają jeszcze bardzo specyficzny charakter. Odnośnie do dziedziny architektury i urbanistyki, dyskusje nad „Sustainable urban forms – zrównoważone formy urbanistyczne " trwają od lat. W artykule tym autor chciałby treściwie przedstawić główne poglądy i argumenty o zrównoważonych formach urbanistycznych, ich naturze, plusach i minusach oraz o wspólnych punktach tych wszystkich argumentów. Dzięki niemu będzie można wyciągnąć istotne wnioski, które mogłyby być nowymi sugestiami do dalszych dyskusji i to także jest głównym celem tego artykułu.

1. An overview of the notion of sustainable development

'Sustainability' and 'sustainable development'[1] have become one of the most distinguished international agenda since the last two decades. However, definitions of sustainability and sustainable development are still under discussion and the notions remains vague and controversial. There have been over one hundreds and forty definitions of sustainable developments.[2] The most widely accepted definition of sustainable development emerged in the

[1] Although there is distinction between these terms, they tend to be interchangeably used (Blower, 1997).
[2] See for example Murcott Susan, Definitions of Sustainable Development, 1997.

Report 'Our Common Future' of the World Commission on Environment and Development WCED, which is often mentioned as the Brundtland Report, in 1987:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own need" *(WCED, 1987, p.8)*

Since the Brundtland Report 1987, the notion of sustainable development has been promoted popularly all over the world. At the United Nations Conference "Earth Summit" in Rio de Janeiro 1992, the Agenda 21 was established urging all countries to contribute to achieving sustainable development.[3] While the definition of Brundtland Commission 1987 offered a formula on which most of the more elaborate definitions of sustainable development draw, the definition contained in Agenda 21, particularly, identified three main dimensions of sustainable development[4] which are:

- Environmental dimension
- Economical dimension
- Social dimension.

Following the Agenda 21, there have been a number of discussions and policy relating to the topic of sustainable development in all continents of the world: the European Union Fifth Action Programme in 1993, Local Agenda 21 at "City Summit" in Istanbul 1996, Plan of Implementation at World Summit on Sustainable Development WSSD in Johannesburg 2002.

2. How can sustainable development be achieved?

On the wider context, the notion of sustainable development remains a controversial and complex concept. On the one hand, the facts that developed countries with 16% of the world population but consume 11 time more energy per head and create half the CO2 from fossil fuel, 3/4 of the industrial waste and 4/5 of the hazardous wastes (Blowers, 1997). Although the annual reports of international environmental organizations show clearly that the global warming has recently speed up (EEA report, 2004) and the most polluted areas on the world include North

[3] Agenda 21- According to United Nation Division for Sustainable Development: There have been 39 issues of sustainable development, including agriculture, atmosphere, biodiversity, biotechnology, energy, land management, transport, poverty ...etc. There are 57 indicators of sustainable development, which are divided into four group of social, environmental, economic, institutional issues. Some of them can be mentioned: percent of population living below poverty line, unemployment rate, emissions of greenhouse gases, GDP per capita, expenditure on research and development as a part of GDP, etc...(Source: http://www.un.org/esa/sustdev/sdissues/sdissues.htm).

[4] Recently, 'Culture' is often mentioned as the fourth main dimension of sustainable development (see for example the 'Cities of the Pacific Rim, Diversity and Sustainability' report, Bangkok 2000) Elsewhere, a number of other dimensions of sustainable development have been presented, for example the seven dimension of sustainability in the Philippine Agenda (http://www.cadi.ph/sustainable_development.htm).

America, Europe and North of China, the rejection of the US government to the Kyoto convention is an obvious examples of how difficult it is to implement sustainable development when it contradicts the interest of governments, especially in short term views. On the other hand, many developing countries have been facing with the growing population, anarchic urbanization, poverty, famine, diseases, as more urgent problems than sustainable development, especially for ordinary people. The goals for development of governments often contradict each other, and this stresses the need for a development policy, which is flexible enough to be accepted by all. As Blowers and Evans (1997) have pointed out that sustainability is, at its very heart, a political rather than a technical or scientific construct, and the variety of interpretations of their notion reflects this. For this reason, "*there is unlikely to be a 'universal theory' of sustainability to inform or guide practice, and sustainability cannot be technicised or reduced to a series of indicators or standards, useful and necessary as these aids undoubtedly are*" (Blowers and Evans, 1997, p. 8).

Despite a number of difficulties and complexities inherent in the notion itself, the question of how to implement sustainable development is still the concern of most local, national and international policy an strategies currently. In order to achieve sustainable development, the slogan "think globally, act locally" should be added with "act globally as well" (Kemmeier, 2004). The key governance outcomes through Plan of Implementation (WSSD, Johannesburg, 2002) promote a holistic approach and "*enhancing participation and effective involvement of civil society and other stakeholders in the implementation of Agenda 21, as well as promoting transparency and broad public participation... Strengthening capacities of sustainable development at all levels, including the local level, in particular those of developing countries*" (WSSD, 2002, paragraph 121). Implementing sustainable development all over the world might be too good to be true. However, implementation of sustainable development from local levels could be possible and "worth trying " because of a reason: no matter what it is named, the goals of sustainable development are our legitimate aspirations of prosperity and happiness, providing for the best of people and the environment both now and in the future.

3. From sustainable development to the debate on sustainable urban forms

In the area of urban planning, the importance of local community in creating a sustainable city form has been acknowledged, for example through the debate of sustainable urban forms and models of sustainable cities.

Sustainable urban form was understood as the urban form, which has environmental, energy advantages and social benefit. Originally, the debate on sustainable urban form was about the

relationships between density and travel behaviour, which was thought to be crucial for energy efficiency and reducing pollution and the main question was: "Is there any urban form which is more or less sustainable" (see for example Breheny 1992, Jenks *et al.* 1996, Frey 1999). The debate of sustainable urban form was reflected through the debate on the merits of the compact city, which is one of the most significant current urban issues (RISC Foundation, 2004). There are three theory strands, of which scholars are often mentioned as **Centrists**, **Decentrists** and **Compromisers**.

- **'Centrists'**

Arguments of the group of 'centrists' including the CEC (1990), Jacobs (1961), Newman and Kenworthy (1989), Elkin *et al.*(1991) Sherlock (1991), Enwicht (1992), Mc Laren (1992) Owens and Rickaby (1992) who believe that the compact city has environmental and energy advantages and social benefit are due to a number of reasons:

High containment of urban development, reuse of infrastructure and previously developed land, rejuvenation of existing urban area, urban vitality, conservation of countryside, as a result of compact city with high population densities.

Effective public transport will increase overall accessibility and mobility especially for people without a car, reduce vehicular traffic volumes – less pollution, congestion, accidents, noise, etc.

Overall high population densities will enhance viability of mixed use, reduce travel distances, promote walking and cycling – less car dependency, less emissions and greenhouse gas, lower consumption of fossil fuel, energy – efficiency, better environment and better health.

Lower heating cost as a result of denser urban fabric, with less energy consumption and less pollution.

The potential of social mix as a result of high population densities, specially when supported by a wide range of dwelling and tenure types in the neighbourhoods.

Concentration of local activities in communities and neighbourhoods will bring a high-quality life, greater safety, more vibrant environment as well as support for businessmen and services enhance trading activities.

- **'Decentrists'**

There are also a number of counter arguments against the compact city (see Frey ,1999, p. 25). Some of those arguments are presented below:

"There is evidence which suggests that these claims which suggests that these claims (compact city concept) are at the least romantic and dangerous and do not reflect the hard reality of economic demands, environment sustainability and social expectation. The overriding problem with the compact city is that it require us to ignore the causes and effects of decentralisation, and benefits it may bring" (Thomas and Cousins, 1996, p. 56).

At particularly high densities, the advantages of concentration might change into disadvantages through congestion which would outweigh energy consumption benefits of the compact city (Breheny, 1992 a).

The fact that telecommunication allows people to live in the country contradicts the compact city concept (Breheny, 1992 a).

The concept of the green city (also promoted by CEC,1990) is in contradiction to that of the compact city (Breheny, 1992a) (Jenks et al, 1996).

Open space in city would be taken up, "*while established open spaces such as parks and squares may face little threat, the potential for future open spaces could be greatly undermined*" (RICS Foundation, 2004).

The compact city policy would result in the neglect of rural communities and earlier growth centres which emerged under dispersal policy. Rural economic development would be threatened by a focus of activities within existing towns and cities (Breheny, 1992a). – In particular, taking into account the essential feature of development in Asian developing countries, which is the massive attraction of the metropolis due to extreme contrast between the city and the countryside, this argument is of paramount important.

The compact city would cause congestion, with the increased pollution, loss of amenity space and reduction of privacy so well demonstrated in cities like Calcutta, Cairo and Rio.

In the compact city social segregation would grow as a result of the high cost of accommodation in the city centre and in the more privileged outer suburbs.

The scale of energy savings through concentration maybe trivial in comparison to the disbenefits it causes e.g. in terms of unpopular restrictions on movement (Breheny, 1995).

Optimum use of passive solar gain demands lower densities as the best energy savings are made with detached houses, semi-detached houses and bungalows; savings are less with terraced housing and less still with flats (Breheny, 1992a).

The policy of a high-density, compact city fails to take account of the uncertainty in population growth and dispersal, i.e. that the compact city would not be able to respond to the predicted increase in the number of household. --In the context of rapidly growing population in developing countries, this argument is worth of attention.

The power to affect local decisions and the viability of the provision of community facilities diminish with increasing scale of a compact city.

The compact city means massive financial incentives, which are economically suspect, and a high degree of social control, which is politically unacceptable.

Many of the opposers to the compact city support the concept of 'Decentralised Concentration'. This include the concept of a multi-nucleated city or city region in which uses

concentrated in the mono-core of the compact city are dispersed into a number of smaller centres forming the nuclei of urban districts or town or 'village' (Frey, 1999, p.26). The concept of 'Decentralised Concentration' can be drawn with following main policies:

Continuing urban containment policy and slow down the decentralisation process.

Compact city proposals, in any extreme form, are unrealistic and undesirable.

Various forms of 'decentralised concentration', based around single cities or group of towns, may be appropriate.

Inner cities must be rejuvenated, thus reducing further losses of population and jobs.

Public transport must be improved both between and within all towns.

Mixed use must be encouraged in cities, and zoning discouraged.

People –intensive activities must be developed around public transport nodes, along the Dutch 'right business in the right place' principle.

Urban (or regional)greening must be promoted.

Combined heat and power (CHP) systems must be promoted in new and existing developments.

It might be realizable that the difference between 'centrist' and 'decentrist' is mainly based on setting measure of compactness of urban form. Both groups recognize the need of urban containment, discouraging urban decentralization, revitalization of inner city, strong promotion of public transport, mixed use ...etc. However, the questions of 'cost and benefit' to implement both of these policy while balancing energy issues with social, economic and environmental objectives is essential. In addition, regional context, topographical, socio economic, historical and cultural conditions of the city, its specific structure and forms, the character and identity of the city...ect are very important factors which must be considered but have yet regarded in arguments of both groups 'centrists' and 'decentrists'. For example, the question of feasibility, especially financially and how long will it take us to implement these urban forms has not been answered either.

- **'Compromisers'**

There is another group of 'compromisers' (Breheny, 1996), Scoffham and Vale (1996), Thomas and Cousins (1996) who advocate a combination of advantages of centralisation with benefit of 'inevitable decentralization' to town and suburbs (Breheny, 1996, p.32). But the most worth attention point of their concept is that individual should involve the community and develop a strong identity and control over local resources (Scoffham and Vale, 1996, pp.11-12). This is based on two convictions. First, that the people in a neighbourhood know best what their needs and aspiration are, and second that they readily take more responsibility for and ownership of their neighbourhoods if they have been involved in shaping it (Frey, 1999).

As it was argued by Frey(1999), the compact city might render a participatory difficult if not impossible. For communities to become successfully involved in the shaping of their own

neighbourhoods requires decentralisation of power and consequently the decentralisation of city form and structure. On the one hand, this makes compromisers be closer to the 'decentrists', on the other hand, this seems to be necessitate a combination of them. The decomposition of the city or city region into smaller areas (districts, neighbourhoods) would enhance the effective involvement of the communities but at the same time requires a framework at city or regional level, or macro structure, for the integration of all development actions in districts and neighbourhoods.

4. Conclusions

The debate on sustainable urban form has been continuing and most of the cities all over the world have been still very far to be sustainable. Reason? According to Frey (1999, p.38) "*confused definitions and research focusing on a limited number of aspects (such as efficiency in terms of energy, transport ,etc.) have not generated reliable answers to the question of a more sustainable city form in terms of energy efficiency, viability of public transport and of services and facilities. Research results are inconclusive and no clear city model emerges that promises to be definitely preferable to other model*". The key answers might come from other approaches.

First, the question of feasibility of sustainable development at a macro scale, which has yet been answered due to the complexity, and controversy of the concept. A bottom – up approach, focusing on concretization of aims and objectives at local level, combined with general integrating policies and cooperation between stakeholders might be a reasonable way towards sustainability and towards sustainable urban forms.

Second, the potential of urban planning in development process need to be clearly identified. The role of urban form or more generally the built environment is very important but not the most essential in development process. Socio-economic situations and political system, historical and cultural conditions, natural and topographical context, demographical ...etc are critical factors. The same urban form might be sustainable or unsustainable in different periods of time.

This article suggests that the answer for the question of whether sustainable urban forms exist might be: "Yes, there are sustainable urban forms but not in the sense of a "ready-to-use" model to apply". People need to find their own sustainable urban forms basing on the specific context of their places, their culture, history, and identities, which is the most important for them to exist and achieve sustainable development.

Bibliography

1. Blowers A. & Evans B.: Town planning in to the 21st century, 1997.
2. Blowers A.: Planning for a sustainable environment, 1993.
3. Breheny M. J.: Sustainable development and urban form, 1992.
4. Frey H.: Designing the city towards a more sustainable urban form, 1999.
5. Jenks M. and Burgess R.: Achieveing Sustainable Urban Forms,1996.
6. RISC Foundation: Towards sustainable places, 2004.